

CURRICULUM VITAE

Date prepared: 5/97

**EXHIBIT
1**Name: **Barbara E. Bierer**Address: **399 Hammond Street
Chestnut Hill, MA 02167
(617) 566-5386**Place of Birth: **New York, New York****Education:**

**1976 B.S. Yale College, New Haven, Connecticut
1980 M.D. Harvard Medical School, Boston, Massachusetts**

Postdoctoral Training:**Internships and Residencies:**

**1980-1981 Intern in Medicine, Massachusetts General Hospital
1981-1983 Resident in Medicine, Massachusetts General Hospital**

Fellowships:

**1980-1984 Clinical Fellow in Medicine, Harvard Medical School
1983-1984 Clinical Fellow in Medicine, Brigham and Women's Hospital
1984-1986 Research Fellow in Medicine, Harvard Medical School
1984-1987 Research/Clinical Fellow in Medicine, Brigham and Women's Hospital
1984-1987 Research Fellow, Pediatric Oncology, Dana-Farber Cancer Institute**

Licensure and Certification:

**1981 Diplomate, National Board of Medical Examiners, No. 226474
1982 Physician, Commonwealth of Massachusetts, License Registration No. 49027
1983 Diplomate, American Board of Internal Medicine, Certificate No. 091271
1985 Diplomate, Subspecialty of Medical Oncology, American Board of Internal Medicine
1986 Diplomate, Subspecialty of Hematology, American Board of Internal Medicine**

Academic Appointments:

**1986-1989 Instructor in Medicine, Harvard Medical School
1989-1993 Assistant Professor of Medicine, Harvard Medical School
1993- Associate Professor of Medicine, Harvard Medical School**

Hospital Appointments:

**1984- Associate Physician, Brigham and Women's Hospital
1987-1989 Instructor in Medicine, Dana-Farber Cancer Institute
1988-1995 Assistant in Medicine, The Children's Hospital, Boston, MA
1989-1993 Assistant Professor of Medicine, Dana-Farber Cancer Institute
1993- Associate Professor of Medicine, Dana-Farber Cancer Institute
1994- Director, Pediatric Bone Marrow and Stem Cell Transplantation,
Dana-Farber Cancer Institute and The Children's Hospital
1994- Chief, Inpatient Bone Marrow and Stem Cell Transplantation, The
Children's Hospital**

1995- Associate in Medicine, The Children's Hospital

Awards and Honors:

1976 Distinction in Biology, Yale College
 1976 B.S., magna cum laude, Yale College
 1983-1984 Clinical Fellow, American Cancer Society, New York
 1987-1992 Clinician-Scientist Award, American Heart Association
 1988-1992 McDonnell Fellow in Molecular Medicine in Cancer Research,
 James S. McDonnell Foundation
 1992-1997 Established Investigator Award, American Heart Association
 1993- American Society for Clinical Investigation

Major Committee Assignments:

Harvard Medical School

1984-1987 Alumni Councillor, Harvard Medical Alumni Association
 1986-1988 Chairman, Alumni-Student Committee, Harvard Medical School
 1986-1988 Liaison Committee on Medical Education, Harvard Medical School
 1993- M.D.-Ph. D. Program Steering Committee, Harvard Medical School
 1995- Faculty Fellowship Committee, Harvard Medical School

National and Regional

1991-1993 American Cancer Society, Immunobiology and Immunotherapy study
 section, Ad Hoc Member
 1992-1993 National Institutes of Health, AIDS and Related Research study section,
 Ad Hoc Member
 1993- Immunobiology Study Section, Division of Research Grants,
 National Institutes of Health
 1994-1995 National Heart Lung and Blood Institute, Ad Hoc Review of
 National Bone Marrow Registry
 1995- Charles H. Hood Foundation, Boston, Child Health Advisory Committee
 1995 National Institute of Arthritis and Musculoskeletal and Skin Diseases,
 Board of Scientific Counselors, Ad Hoc Reviewer
 1996- Boston Ronald McDonald House Board of Directors
 1996- American Cancer Society, Research Committee
 1996- Steering Committee, Unrelated Umbilical Cord Blood Project, National
 Heart, Lung & Blood Institute

Hospital

1991- Biomedical Research Study Grant Committee, Dana-Farber Cancer Institute
 1991-1996 Medical Hematology/Oncology Fellowship Selection Committee,
 Brigham and Women's Hospital
 1994- Pediatric Scientific Review Committee, Department of Pediatric Oncology,
 Dana-Farber Cancer Institute
 1994- Oncology Residents Education Committee, Children's Hospital
 and Dana-Farber Cancer Institute
 1995- By-Laws Committee, Dana-Farber Cancer Institute
 1995- Chairperson, Oncology Committee, Children's Hospital
 1995- Chairperson, By-Laws Committee, Dana-Farber Cancer Institute
 1995- Patient Care Committee, Children's Hospital
 1995-1997 Co-chairperson, Protocol Process Improvement Team,
 Dana-Farber Cancer Institute
 1996- Faculty Research Council, Dana-Farber Cancer Institute

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1996- Chair, Pediatric Scientific Review Committee, Dana-Farber Cancer Institute
1996- Clinical Investigations Policy and Oversight Committee, Dana-Farber
Cancer Institute
1996- Operations Committee, Department of Pediatric Oncology, Dana-Farber
Cancer Institute

Memberships, Offices, and Committee Assignments in Professional Societies:

1974-1976 Yale Legal Aid Society, Yale Law School
1982-1987 Diplomate, American College of Physicians
1986- Physicians for Social Responsibility
1987- American College of Physicians
1989- American Association of Immunologists
1991- American Society of Hematology
1993- American Heart Association, Basic Sciences Council
1993- American Society for Blood and Marrow Transplantation
1993- Clinical Immunology Society
1995- 1996 American Society for Blood and Marrow Transplantation
Program Committee
1995- Councillor, American Society for Clinical Investigation
1995- Status of Women Committee, American Association of Immunologists
1995- Fellow, Molecular Medicine Society

Editorial Boards:

1990-1994 Associate Editor, Journal of Immunology
1993- Editorial Advisory Board, Life Sciences
1994- Associate Editor, Medical Principles and Practice
1994- Associate Editor, Biology of Blood and Marrow Transplantation
1994- Cutting Edge, Journal of Immunology
1995- Section Editor, Journal of Immunology
1995- Editorial Board, BLOOD
1997- Editorial Board, Journal of Clinical Immunology

Major Research Interests:

1. T Lymphocyte Activation and Immunosuppression
2. Lymphocyte Signal Transduction
3. Bone Marrow Transplantation and Transplantation Immunology

Research Funding Information:

Past:

1987-1990 AHA/Clinician-Scientist Award, PI
Functional cell surface antigens in T cell activation.

1988-1991 James S. McDonnell McDonnell Foundation Award, PI.

1988-1992 NIH/Program Project Award. Steven J. Burakoff, M.D., PI.
Project 5: PI.
Project title: T cell function after bone marrow transplantation.

1989-1994 NIH/First Award, PI.
Interaction of CD2 with LFA-3 in T cell activation.

Current:

1992-1997 AHA/Established Investigator Award, PI.
Regulation of the T cell response.

1993-1997 NIH/PO1. Abul Abbas, PI.
Project 4: PI.
Project title: Intracellular mechanisms of T cell tolerance.

1993-1997 NIH/RO1, PI.
Mechanisms of immunosuppression by FK506.

1993-1998 NIH/RO1, PI.
Role of CD2 in T cell adhesion and activation.

1994-1999 NIH/PO1. Richard L. Stevens, Ph.D., PI.
Project 2: Co-Investigator.
Project title: Regulation of mast cell cytokine production and inhibition.

1996-2001 NIH NHLBI-N01-HB67113, P.I.
Transplant Centers for Clinical Research on Transplantation of
Umbilical Cord Stem and Progenitor Cells.

Principal Clinical and Hospital Service Responsibilities:

1987- Associate Physician, Brigham and Women's Hospital
1994- Active Staff in Pediatric Oncology, Dana-Farber Cancer Institute
1994- Director, Pediatric Bone Marrow Transplantation, Dana-Farber
Cancer Institute and The Children's Hospital, Boston
1994- Chief, Bone Marrow Transplantation, The Children's Hospital

Self Report of Teaching:

Harvard Medical School

1980-1986 Pre-Medical tutor, Eliot House, Harvard University, Cambridge, MA
1987-1989 Instructor, Introduction to Clinical Medicine
1990-1992 Lecturer, Intensive Review of Internal Medicine
1990- Lecturer, Intensive Review of Hematology and Hematologic Oncology
1992- Lecturer, Markey Immunology 222
1992-1994 Lecturer, Renal Transplantation: Clinical Therapy and Management
1993- Lecturer, MCB 268, Molecular Immunology, Harvard University
1993- Course Director, Immunology 212: Lymphocyte Signal Transduction,
Harvard Graduate School of Arts and Sciences and
Harvard Medical School
1993- Lecturer, Biochemistry 168
1996- Lecturer, Pharmacology and Clinical Therapeutics

Massachusetts General Hospital

1980-1983 Supervision of Harvard Medical School students, Massachusetts General Hospital

Brigham and Women's Hospital

1983- Supervision of Harvard Medical School students
1984- Hematology Grand Rounds
1987-90 Attending Physician, Hematology-Oncology Service
1988- Attending Physician, Bone Marrow Transplantation Service

The Children's Hospital

1983- Supervision of Harvard Medical School students
 1986- Pediatric Hematology-Oncology Research Seminar
 1988- Attending Physician, Bone Marrow Transplantation Service
 1994- Medical Grand Rounds

Dana-Farber Cancer Institute

1986- Pediatric Hematology-Oncology Research Seminar
 1994- Director and Attending Physician, Bone Marrow Transplantation Service

Advising Responsibilities

Graduate Student Sponsor

Past: 1988-1993 William Hahn, M.D., Ph.D.
 1990-1994 David A. Fruman, Ph.D.
 1992-1993 Sung-Yun Pai, M.D.

Current: 1993-present Huamao Lin
 1994-present Jacqueline Slavik
 1994-present Ross Stillwell
 1995-present S. Celeste Posey

Postdoctoral Fellow Advisor

Past: 1989-1990 Hanna Wolff Ratjen, M.D.
 1989-1991 Rienk Offringa, Ph.D.
 1989-1993 Victor Calvo, Ph.D.
 1990-1993 Elisabeth Menu, Ph.D.
 1992-1994 Michael Wood, M.D.
 1992-1994 Manuel Perry, M.D.
 1993-1995 David Franklin, Ph.D.
 1994-1997 Jasbir Sagoo, Ph.D.

Current: 1992-present Jill Hutchcroft, Ph.D.
 1994-present Ta-Kai Li, Ph.D.
 1994-present Amy Crum Vander Woude, M.D.
 1994-present Neeta Mukerjee, Ph.D.
 1995-present Lisbeth Berruetá, M.D.
 1996-present Meredith Irwin, M.D.
 1996-present Jennifer Tirnauer, M.D.

Leadership Roles

1994-95 Coordinator, Hematology-Oncology Research Seminar, Brigham and Women's Hospital
 1994-96 Coordinator, Harvard Medical School Bone Marrow Transplantation Conference, Dana-Farber Cancer Institute and Harvard Medical School
 1994- Coordinator, Bone Marrow Transplant Administrative Conference, Dana-Farber/Partners Cancer Care

Regional, National, and International Contributions

Invited Presentations (1993 - present)

1993 - Invited speaker, American Association of Immunologists Advanced Immunology Course
 - Invited speaker, Biological Response Modifiers Program, Frederick Cancer Research and Development Center, National Cancer Institute

- Invited speaker, Inflammation Research Association Symposium on "Lymphocyte Accessory Molecules," New York, NY
- Invited speaker, Midwinter Conference of Immunologists
- Invited speaker, Massachusetts General Hospital Immunology Seminar Series
- Invited speaker, Immunology Visiting Professor Series, University of Massachusetts Medical Center
- Invited speaker, Graduate Program in Immunology, Tufts University School of Medicine
- Invited speaker, Immunobiology/Immunochemistry Gordon Conference, and Discussion leader, Immunophilins/calcineurin
- Invited speaker, Clinical Sciences Lectureship Program, Fred Hutchinson Cancer Research Center
- Invited speaker, Cellular Immunology Seminar Series, Laboratory of Immunology, National Institute of Allergy and Infectious Diseases
- Invited speaker, FASEB Summer Research Conference "Autoimmunity"
- Invited speaker and symposium chair, American Society for Biochemistry and Molecular Biology, Division of Biological Chemistry, American Chemical Society
- Invited speaker, University of Washington
- Invited speaker, BioTransplant Incorporated
- Invited speaker, Plenary Session, FASEB Annual Meeting
- Chair, Lymphocytes and Immunology, American Society of Hematology Annual Meeting
- Invited speaker, World Congress Inflammation '93, Vienna, Austria

1994

- Invited speaker and symposium chair, Tufts University School of Medicine Graduate Program in Immunology
- Invited speaker, Immunology Program Training Seminar, Boston University Medical Center
- Invited speaker; symposium on "Advances in Bone Marrow Transplantation and Treatment of Complications: VOD, Sepsis and GVHD."
- Invited speaker; Immunology Affinity Group, The Scripps Research Institute.
- Invited speaker; UCSD Cancer Center Seminar Series, University of California, San Diego.
- Invited speaker; Gwen Knapp Center for Lupus and Immunology Research, University of Chicago
- Invited speaker, Dartmouth-Hitchcock Medical Center
- Invited speaker, Immunology Graduate Program Research Seminar, New York Hospital-Cornell Medical Center
- Invited speaker, University of Michigan Medical School, Ann Arbor, MI
- Invited speaker, Clinical Research Meeting and American Society for Clinical Investigation Annual Meeting, Baltimore, MD
- Invited speaker, Abbott Laboratories
- Invited speaker, Immunology Visiting Professor Series, University of Massachusetts Medical Center
- Invited speaker, Memorial Sloan Kettering Cancer Center, New York, NY
- Invited speaker, Harvard-Markey Biomedical Scientist Program Annual Seminar Series
- Invited speaker, Plenary Session, Endocrine Society Annual Meeting, Las Vegas, NV
- Invited speaker, Plenary Session, FASEB Annual Meeting

1995

- Invited speaker; University of Pennsylvania Immunology Colloquium
- Invited speaker, FASEB Educational symposium
- Invited speaker, Immunology Service, Massachusetts Eye and Ear Infirmary
- Invited speaker, Inauguration of the Brooklyn Center Hospital Bone Marrow and Peripheral Blood Transplantation Unit, Brooklyn, NY

- Invited speaker, US-Japan Immunology Conference
- Invited speaker, Class Day symposium, Harvard Medical School
- Invited speaker, Allergy and Immunology Conference, Brigham and Women's Hospital
- Invited speaker, Minisymposium, American Society of Hematology, Seattle, WA
- Invited speaker, Hematology-Oncology Research Seminar, Brigham and Women's Hospital

1996

- Invited speaker, Harvard Bone Marrow Transplantation Conference, Dana-Farber Cancer Institute
- Invited speaker, Cardiomyopathy/Cardiac Transplant Research Conference, Brigham and Women's Hospital
- Invited speaker, MedImmune Inc., Gaithersburg, MD
- Invited participant, NCI Tumor Immunology and Immunotherapy Conference, Washington, D.C.
- Invited speaker, American Society for Blood and Marrow Transplantation, San Diego, CA
- Plenary Session Chair, "Novel Approaches in Blood and Marrow Transplantation", American Society for Blood and Marrow Transplantation, San Diego, CA
- Minisymposium Chair, American Society of Hematology, Orlando, FL

BIBLIOGRAPHY

Original Reports

1. Rosa RM, Bierer BE, Thomas R, Stoff JS, Kruskall M, Robinson S, Bunn HF, Epstein FH. Prevention and treatment of sickle cell crisis by induced hyponatremia. *Trans Assoc Am Phys* 1980; 93:164-74.
2. Rosa RM, Bierer BE, Thomas R, Stoff JS, Kruskall M, Robinson S, Bunn HF, Epstein FH. A study of induced hyponatremia in the prevention and treatment of sickle cell crisis. *N Engl J Med* 1980; 303:1138-43.
3. Rosa RM, Bierer BE, Bunn HF, Epstein FH. The treatment of sickle cell anemia with induced hyponatremia. *Blood Cells* 1982; 8:329-35.
4. Herrmann HC, Kaplan LM, Bierer BE. Q-T prolongation and Torsades de Pointes ventricular tachycardia produced by the tetracyclic antidepressant agent Maprotiline. *Am J Cardiol* 1983; 51:904-6.
5. Bringhurst FR, Bierer BE, Segre GV. Hypercalcemia of malignancy: soluble bone resorbing factors in establishing cultures of human tumor cells. *Calcif Tiss Internat* 1984; 36:480-2.
6. Bringhurst FR, Bierer BE, Godeau F, Neyhard N, Varner V, Segre GV. Humoral hypercalcemia of malignancy: release of a prostaglandin-stimulating bone resorbing factor in vitro by human transitional-cell carcinoma cells. *J Clin Invest* 1986; 77:456-64.
7. Mentzer SJ, Bierer BE, Anderson DC, Springer TA, Burakoff SJ. Abnormal cytolytic activity of LFA-1 deficient human CTL clones. *J Clin Invest* 1986; 78:1387-91.
8. Krangel MS, Bierer BE, Devlin P, Clabby M, Strominger JL, McLean J, Brenner MB. T3 glycoprotein is functional although structurally distinct on human T-cell receptor gamma T lymphocytes. *Proc Natl Acad Sci USA* 1987; 84:3817-21.
9. Mentzer SJ, Remold-O'Donnell E, Crimmins MAV, Bierer BE, Rosen FS, Burakoff SJ. Sialophorin, a surface sialoglycoprotein defective in the Wiskott-Aldrich syndrome, is involved in human T lymphocyte proliferation. *J Exp Med* 1987; 165:1383-92.
10. Bierer BE, Herrmann SH, Brown CS, Burakoff SJ, Golan DE. Lateral mobility of class I histocompatibility antigens in B lymphoblastoid cell membranes: modulation by cross-linking and effect of cell density. *J Cell Biol* 1987; 105:1147-52.
11. Bierer BE, Peterson A, Barbosa J, Seed B, Burakoff SJ. Expression of the T-cell surface molecule CD2 and an epitope-loss CD2 mutant to define the role of lymphocyte function-associated antigen 3 (LFA-3) in T cell activation. *Proc Natl Acad Sci USA* 1988; 85:1194-8.
12. Bierer BE, Nishimura Y, Burakoff SJ, Smith BR. Phenotypic and functional characterization of human cytolytic T cells lacking expression of CD5. *J Clin Invest* 1988; 81:1390-7.
13. Nishimura Y, Bierer BE, Jones W, Jones N, Strominger JL, Burakoff SJ. Expression and function of a CD5 cDNA in human and murine T cells. *Eur J Immunol* 1988; 18:747-53.
14. Bierer BE, Barbosa J, Herrmann S, Burakoff SJ. Interaction of CD2 with its ligand, LFA-3, in human T cell proliferation. *J Immunol* 1988; 140:3358-63.
15. Bierer BE, Emerson SG, Antin J, Maziarz R, Rappeport JM, Smith BR, Burakoff SJ. Regulation of cytotoxic T lymphocytes-mediated graft rejection following bone marrow transplantation. *Transplantation* 1988; 46:835-9.

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16. Virella G, Rugeles MT, Hyman B, La Via M, Goust JM, Frankis M, Bierer BE. The interaction of CD2 with its LFA-3 ligand expressed by autologous erythrocytes results in enhancement of B cell responses. *Cell Immunol* 1988; 116:308-19.
17. Bierer BE, Peterson A, Gorga JC, Herrmann SH, Burakoff SJ. Synergistic T cell activation via the physiological ligands for CD2 and the T cell receptor. *J Exp Med* 1988; 168:1145-56.
18. Nishimura Y, Bierer BE, Burakoff SJ. Expression of CD5 regulates responsiveness to interleukin 1. *J Immunol* 1988; 141:3438-44.
19. Niemeyer CM, Sieff CA, Mathey-Prevot B, Wimperis JZ, Bierer BE, Clark SC, Nathan DG. Expression of human interleukin-3 (multi-CSF) is restricted to human lymphocytes and T-cell tumor lines. *Blood* 1989; 73:945-51.
20. Bierer BE, Burakoff SJ, Smith BR. A large proportion of T lymphocytes lack CD5 expression after bone marrow transplantation. *Blood* 1989; 73:1359-66.
21. Bierer BE, Golan DE, Brown CS, Herrmann SH, Burakoff SJ. A monoclonal antibody to LFA-3, the CD2 ligand, specifically immobilizes major histocompatibility complex proteins. *Eur J Immunol* 1989; 19:661-6.
22. Bierer BE, Bogart RE, Wolff HL, Burakoff SJ. Functional analysis of anti-CD2 MAbs reactivity. In: Knapp W, ed. *Leukocyte Typing IV. White Cell Differentiation Antigens*. Oxford: Oxford University Press, 1989; 274-7.
23. Bierer BE, Bogart RE, Burakoff SJ. Partial deletions of the cytoplasmic domain of CD2 result in partial, not absolute, defects in signal transduction. *J Immunol* 1990; 144:785-9.
24. Bierer BE, Schreiber SL, Burakoff SJ. Mechanisms of immunosuppression by FK506: preservation of T cell transmembrane signal transduction. *Transplantation*, 1990; 49:1168-70.
25. Wolff HL, Burakoff SJ, Bierer BE. Functional CD2 mutants unable to bind to, or be stimulated by, LFA-3. *J Immunol* 1990; 144:1215-20.
26. Bierer BE, Nathan DG. The effect of desferrithiocin, an oral iron chelator, on T cell function. *Blood* 1990; 76:2052-9.
27. Bierer BE, Mattila PS, Standaert RF, Herzenberg LA, Burakoff SJ, Crabtree G, Schreiber SL. Two distinct signal transduction pathways in T lymphocytes are inhibited by alternative complexes formed between an immunophilin and either FK506 or rapamycin. *Proc Natl Acad Sci USA* 1990; 87:9231-5.
28. Bierer BE, Somers PK, Wandless TJ, Burakoff SJ, Schreiber SL. Probing immunosuppressant action with a nonnatural immunophilin ligand. *Science* 1990; 250:556-9.
29. Antin JH, Bierer BE, Smith BR, Guinan EC, Provost MM, Ferrara J, Macklis RM, Tarbell NJ, Blythman H, Bouloux C, Zinniti LM, Bogart R, Burakoff SJ, Weinstein HJ. Depletion of bone marrow T-lymphocytes with an anti-CD5 monoclonal immunotoxin (ST1-immunotoxin): effective prophylaxis for graft-versus-host disease. *Prog Clin Biol Res* 1990; 207-15.
30. Bierer BE, Schreiber SL, Burakoff SJ. The effect of the immunosuppressant FK506 on alternate pathways of T cell activation. *Eur J Immunol* 1991; 21:439-45.

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31. Fretz H, Albers MW, Galat A, Standaert RF, Lane WS, Burakoff SJ, Bierer BE, Schreiber SL. Rapamycin and FK506 binding proteins (Immunophilins). *J Am Chem Soc* 1991; 113:1409-11.
32. Park JK, Rosenstein YJ, Remold-O'Donnell E, Bierer BE, Rosen FS, Burakoff SJ. Enhancement of T-cell activation by the CD43 molecule whose expression is defective in Wiskott-Aldrich syndrome. *Nature* 1991; 350:706-9.
33. Hahn WC, Rosenstein Y, Burakoff SJ, Bierer BE. Interaction of CD2 with its ligand lymphocyte function-associated antigen-3 induces adenosine 3',5'-cyclic monophosphate production in T lymphocytes. *J Immunol* 1991; 147:14-21.
34. Jin Y-J, Albers MW, Lane WS, Bierer BE, Schreiber SL, Burakoff SJ. Molecular cloning of a membrane-associated human FK506- and rapamycin-binding protein, FKBP-13. *Proc Natl Acad Sci USA* 1991; 88:6677-81.
35. Antin JH, Bierer BE, Smith BR, Ferrara J, Guinan EC, Sieff CA, Golan DE, Macklis RM, Tarbell NJ, Reichert TA, Blythman H, Bouloux C, Rappeport JM, Burakoff SJ, Weinstein HJ. Selective depletion of bone marrow T lymphocytes with anti-CD5 monoclonal antibodies: effective prophylaxis for graft-versus-host disease in patients with hematologic malignancies. *Blood* 1991; 78:2139-49.
36. Rosenstein Y, Park JK, Hahn WC, Rosen FS, Bierer BE, Burakoff SJ. CD43, a molecule defective in Wiskott-Aldrich syndrome, binds ICAM-1. *Nature* 1991; 354:233-5.
37. Calvo V, Bierer BE, Vik TA. T cell receptor activation of a ribosomal S6 kinase activity. *Eur J Immunol* 1992; 22:457-62.
38. Fruman DA, Klee CB, Bierer BE, Burakoff SJ. Calcineurin phosphatase activity in T lymphocytes is inhibited by FK506 and CsA. *Proc Natl Acad Sci USA* 1992; 89:3686-90.
39. Hollsberg P, Wucherpfennig KW, Ausubel LJ, Calvo V, Bierer BE, Hafler DA. Characterization of HTLV-I in vivo infected T cell clones. IL-2 independent growth of non-transformed T cells. *J Immunol* 1992; 148:3256-63.
40. Jin Y-J, Burakoff SJ, Bierer BE. Molecular cloning of a 25kD high affinity rapamycin binding protein- FKBP25. *J Biol Chem* 1992; 26:10942-5.
41. Hahn WC, Menu E, Bothwell AJ, Sims P, Bierer BE. Overlapping but non-identical binding sites on CD2 for CD58 and a second ligand, CD59. *Science* 1992; 256:1805-7.
42. Calvo V, Vik TA, Crews CM, Bierer BE. Interleukin 2 signaling preferentially stimulates, and rapamycin inhibits, S6 kinases of the 70 kDa family. *Proc Natl Acad Sci USA* 1992; 89:7571-5.
43. Hahn WC, Rosenstein Y, Calvo V, Burakoff SJ, Bierer BE. A distinct cytoplasmic domain of CD2 regulates ligand avidity and T-cell responsiveness to antigen. *Proc Natl Acad Sci USA* 1992; 89:7179-83.
44. Arceci RJ, Stieglitz K, Bierer BE. Immunosuppressants FK506 and rapamycin function as reversal agents of the multidrug resistance phenotype. *Blood* 1992; 80:1528-36.
45. Kaye RE, Fruman DA, Bierer BE, Albers MW, Zydowsky LD, Ho SI, Jin Y-J, Castells MC, Schreiber SL, Walsh CT, Burakoff SJ, Austen KF, Katz HR. Effects of cyclosporin A and FK506 on Fc ϵ receptor type I-initiated increases in cytokine mRNA in mouse bone marrow-derived progenitor mast cells: resistance to FK506 is associated with a deficiency in FK506-binding protein 12. *Proc Natl Acad Sci USA* 1992; 89:8542-6.

46. Price DJ, Grove JR, Calvo V, Avruch J, Bierer BE. Rapamycin-induced inhibition of the 70 kilodalton S6 protein kinase. *Science* 1992; 257:973-7.

47. Fruman DA, Mather PE, Burakoff SJ, Bierer BE. Correlation of calcineurin phosphatase activity and programmed cell death in murine T cell hybridomas. *Eur J Immunol* 1992; 22:2513-7.

48. Offringa R, Bierer BE. Association of CD2 with tubulin: evidence for a role of the cytoskeleton in T cell activation. *J Biol Chem* 1993; 268:4979-88.

49. Hahn WC, Menzin E, Saito T, Germain RN, Bierer BE. The complete sequences of plasmids pFNeo and pMH-Neo: convenient expression vectors for high-level expression of eukaryotic genes in hematopoietic cell lines. *Gene* 1993; 127:267-8.

50. Hahn WC, Burakoff SJ, Bierer BE. Signal transduction pathways involved in T cell receptor-induced regulation of CD2 avidity for CD58. *J Immunol* 1993; 150:2607-19.

51. Dutz JP, Fruman DA, Burakoff SJ, Bierer BE. A role for calcineurin in degranulation of murine cytotoxic T lymphocytes. *J Immunol* 1993; 150:2591-8.

52. Nigam SK, Jin Y-J, Jin M-J, Bush KT, Bierer BE, Burakoff SJ. Localization of the FK506-binding protein, FKBP 13, to the lumen of the endoplasmic reticulum. *Biochemical J* 1993; 294:511-5.

53. Hahn WC, Bierer BE. Separable portions of the CD2 cytoplasmic domain involved in signaling and ligand avidity regulation. *J Exp Med* 1993; 178:1831-6.

54. Wheeler C, Strawderman M, Ayash L, Churchill WH, Bierer BE, Elias A, Gilliland DG, Antman K, Guinan EC, Eder JP, Weinstein H, Schwartz G, Ferrara J, Mazanet R, Rimm J, Tepler I, McCarthy P, Mauch P, Ault K, Gaynes L, McCauley M, Schnipper LE, Antin J. Prognostic factors for treatment outcome in autotransplantation of intermediate-grade and high-grade Non-Hodgkin's lymphoma with cyclophosphamide, carmustine, and etoposide. *J Clin Onc* 1993; 11:1085-91.

55. Menu E, Perry MC, Tsai B, Bierer BE. Role of GT2, an anti-CD2 mAb, in CD2-dependent T cell responses. In Schlossman S, Boumsell L, Gilks W, Harlan J, Kishimoto T, Morimoto C, Ritz J, Shaw S, Silverstein R, Springer T, Tedder T, and Todd R (eds). *Leukocyte Typing V: White Cell Differentiation Antigens*. Oxford University Press 1995:349-50.

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57. Hutchcroft JE, Bierer BE. Activation-dependent phosphorylation of the T lymphocyte surface receptor CD28 and associated proteins. *Proc Natl Acad Sci USA* 1994; 91:3260-4.

58. Antin JH, Weinstein HJ, Guinan EC, McCarthy P, Bierer BE, Gilliland DG, Parsons S, Ballen KK, Rimm J, Falzarano G, Bloedow DC, Abate L, Lebsack M, Burakoff SJ, Ferrara JLM. Recombinant human interleukin-1 receptor antagonist in the treatment of steroid-resistant graft-versus-host disease. *Blood* 1994; 84:1342-8.

59. Hollander GA, Fruman DA, Bierer BE, Burakoff SJ. Disruption of T cell development and repertoire selection by calcineurin inhibition *in vivo*. *Transplantation* 1994; 58:1037-43.

60. Menu E, Tsai, BC, Bothwell ALM, Sims PJ, Bierer BE. CD59 costimulation of T cell activation: CD58-dependence and requirement for glycosylation. *J Immunol* 1994; 153:2444-56.

61. Pai S-Y, Calvo V, Wood M, Bierer BE. CD28 induction of 70 kDa S6 kinase activity. *Eur J Immunol* 1994; 24:2364-8.

62. Calvo V, Wood M, Gjertson C, Vik T, Bierer BE. Activation of 70 kDa S6 kinase, induced by the cytokines IL-3 and erythropoietin and inhibited by rapamycin, is not an absolute requirement for cell proliferation. *Eur J Immunol* 1994; 24:2664-71.

63. Pai S-Y, Fruman DA, Leong T, Neuberg D, Rosano TG, McGarigle C, Antin JH, Bierer BE. Inhibition of calcineurin phosphatase activity in adult bone marrow transplant patients treated with CsA. *Blood* 1994; 84:3974-9.

64. Fruman DA, Bierer BE, Benes JE, Burakoff SJ, Austen KF, Katz HR. The complex of FK506-binding protein 12 and FK506 inhibits calcineurin phosphatase activity and IgE activation-induced cytokine transcripts, but not exocytosis, in mouse mast cells. *J Immunol* 1995; 154:1846-51.

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